



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/044,285

01/11/2002

Nicholas F. DiCamillo

22-0191

8420

30050

7590

06/24/2004

PATENT COUNSEL, TRW INC.  
S & E LAW DEPT.  
ONE SPACE PARK, BLDG. E2/6051  
REDONDO BEACH, CA 90278

EXAMINER

DEAN, RAYMOND S

ART UNIT

- PAPER NUMBER

2684

DATE MAILED: 06/24/2004

6

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/044,285

**Applicant(s)**

DICAMILLO ET AL.

**Examiner**

Raymond S Dean

**Art Unit**

2684

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 - 9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 – 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Thompson et al. (US 6,438,354).

Regarding Claim 1, Thompson teaches a communications satellite comprising: a plurality of available downlink antenna apertures, each downlink antenna aperture transmitting a plurality of downlink feed signals (Figure 8 Section IV, Column 3 lines 65 – 67, Column 4 lines 1 – 2, phased array antennas have apertures); a plurality of switching devices to selectively switch a plurality of input signals and provide a plurality of switched signals (Figure 8 Section II); and a plurality of high power amplifiers (HPAs), each one of said plurality of switched signals being received and driven by one of said plurality of HPAs into a corresponding one of said plurality of switching devices and downlink feed signals (Figure 8 Sections III – IV, Column 7 lines 64 - 67), wherein said plurality of HPAs are organized into multiple HPA redundancy pools, each one of the

multiple HPA redundancy pools providing downlink feed signals to a respectively unique combination of said plurality of downlink antenna apertures (Column 7 lines 12 – 23, lines 49 – 51, since the satellite can generate multiple beams on the downlink and since there is HPA redundancy there will be inherent redundancy pools for the transmissions of multiple beams on the downlink).

Regarding Claim 2, Thompson teaches all of the claimed limitations recited in Claim 1. Thompson further teaches wherein each one of said multiple HPA redundancy pools provides downlink feed signals to the same number of downlink antenna apertures as the other ones of said multiple HPA redundancy pools (Column 3 lines 52 – 53, Column 7 lines 12 – 23, lines 49 – 51, since the satellite is optimized to work in the Ku-band and since there are redundancy pools the length of the waveguides from the HPAs to the antennas will be a minimum length thus allowing only a finite number of apertures to be used for downlink transmission for each redundancy pool).

Regarding Claim 3, Thompson teaches all of the claimed limitations recited in Claim 2. Thompson further teaches wherein said same number of downlink antenna apertures is between 2 and  $N-1$ , where  $N$  is the number of available downlink antenna apertures, greater than or equal to 3 (Figure 8 Section IV, Column 3 lines 65 – 67, Column 4 lines 1 – 2, since there are plurality of phased array antennas the number of downlink antenna apertures will be between 2 and  $N - 1$ ).

Regarding Claim 4, Thompson teaches all of the claimed limitations recited in Claim 2. Thompson further teaches wherein each one of said HPA redundancy pools is located so that the waveguide run length between it and the furthest downlink antenna

aperture of its unique combination of downlink antenna apertures is minimized (Column 3 lines 52 – 53, Column 7 lines 12 – 23, lines 49 – 51, since the satellite is optimized to work in the Ku-band and since there are redundancy pools the length of the waveguides from the HPAs to the antennas will be a minimum length thus allowing only a finite number of apertures to be used for downlink transmission for each redundancy pool).

Regarding Claim 5, Thompson teaches all of the claimed limitations recited in Claim 1. Thompson further teaches a plurality of uplink antenna apertures to receive a plurality of uplink beams (Figure 8 Section I, Column 3 lines 37 – 41, lines 65 – 67).

Regarding Claim 6, Thompson teaches all of the claimed limitations recited in Claim 5. Thompson further teaches wherein each of said plurality of uplink beams from corresponding ones of said uplink antenna apertures are provided as said input signals to said plurality of switching devices (Figure 8 Section II).

Regarding Claim 7, Thompson teaches all of the claimed limitations recited in Claim 1. Thompson further teaches wherein said signals relate to broadband communications (Column 3 lines 37 – 41).

Regarding Claim 8, Thompson teaches all of the claimed limitations recited in Claim 1. Thompson further teaches a control unit to control operation of at least said plurality of switching devices such that each input signal is routed to a desired downlink antenna aperture (Figure 8 Section II, Column 7 lines 45 – 51, since the signals are power divided and channelized by the switching devices there will inherently be a control unit that controls the operation of said switching devices).

Regarding Claim 9, Thompson teaches all of the claimed limitations recited in Claim 1. Thompson further teaches wherein the event that one of the HPAs in a HPA redundancy pool fails, one of the other HPAs in said HPA redundancy pool drives the downlink feed signal of said one of the HPAS (Column 7 lines 12 – 23, lines 49 – 51, the fact that there is redundancy means that there will be spare HPAs for transmission on the downlink).

**Conclusion**

3. Any inquiry concerning this communication should be directed to Raymond S. Dean at telephone number (703) 305-8998.

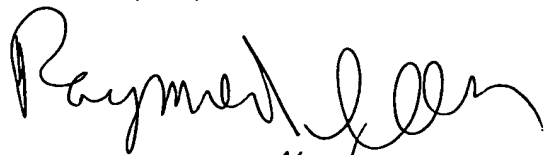
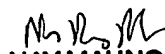
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung, can be reached at (703) 308-7745. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Or faxed to:

(703) 872-9314 (for Technology center 2600 only)

Hand –delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

  
  
**NAY MAUNG**  
**SUPERVISORY PATENT EXAMINER**